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(54) Title: HETERODYNE OPTICAL SPECTRUM ANALYZER

(57) Abstract: A heterodyne optical signal analyzer (HOSA) permits accurate reconstruction of an optical input signal in the time domain. In one embodiment, a vector representation of the light is used to account for two polarization states of the optical signal. The components of a heterodyne optical signal analyzer, including optical couplers, all have errors and offsets. For example, optical power detectors are very sensitive to changes in polarization of the optical signal and of the reference signal. Several HOSA calibration procedures including detector calibration, vector calibration, and reference signal calibration are described.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER												
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B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols) U.S. : 356/487, 453, 484, 451, 454												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
A	US 4,817,101 A (WYETH et al) 28 March 1989 (28.03.1989), see entire document	1-47										
A,P	US 6,587,214 B1 (MUNKS) 01 July 2003 (01.07.2003), see entire document	1-47										
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.												
* Special categories of cited documents: <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

EAST

search terms: interfer, interfere, interfering, interference, interferometer, interferometric, interferometrically, couple, coupler, coupling, power, phasor, mix, mixer, mixing, heterodyn, heterodyne, heterodyning